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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,393	10/30/2001	Takeshi Sekiguchi	CU-2701 RJS	2550

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EXAMINER

KOCH, GEORGE R

ART UNIT PAPER NUMBER

1734

3.

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/021,393		SEKIGUCHI ET AL.	
	Examiner		Art Unit	
	George R. Koch III		1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Objections

1. Claims 1-8 are objected to because of the following informalities:

In claim 1, line 10, "detection result" should be --a detection result--.

Appropriate correction is required.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Raphael (US Patent 5,383,574).

Raphael discloses a device for providing a solution which leads a solution from any one of sources of supply (items 14 and 18) to an applying device via a predetermined flow path (see, for example, Figure 1), comprising a middle tank (item 40) which is provided on the way of the flow path connecting each of the sources of supply and the applying device for each of the sources of supply, a sensor (items 98, 99, 100, and 101) which detects whether an amount of a solution stored in each middle tank is not less than a predetermined lower limit value or not and outputs a signal in association with detection result (see, for example, column 4, line 7 to column 8, line 10), and a controlling device (item 120) which discriminates whether the amount of solution stored in each middle tank is not less than the lower limit value or not on the basis of the output signal from the sensor and performs the predetermined processing in association with switching of the sources of supply when it is decided that the amount of the solution stored in the middle tank is less than the lower limit value (see, for example, column 5, line 49 to column 6, line 27). Subelements of the Sensors (items 99 and 101) specifically set the lower limit value.

As to claim 2, the applying device is considered capable of dispensing a quantity of solution such that the discharge amount is less than the lower limit value.

As to claim 3, the applying device is considered capable of dispensing a quantity of liquid such that the lower limit value is 100 to 150% of the quantity dispensed in one time.

As to claim 4, the maximum amount of solution which is stored in the middle tank is higher than the lower limit value (set by sensors 99 and 101) by a predetermined degree of margin (see, for example, column 4, lines 7-64).

As to claim 5, the sensor, defined by items 98, 99, 100, and 101, outputs different signals depending on whether a position of a liquid level of the solution which is stored in the middle tank is not less than a predetermined position or not. Furthermore, each sensor element 98-101 outputs a different signal depending on whether the liquid level is above or below the sensor.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raphael as applied to claims 1-5 above, and further in view of Liang (US Patent 6,245,148 B1).

As to claims 2, Raphael discloses an applying device (item 96), while considered capable of dispensing the claimed quantity and relationship of solution, is silent as to the relationship between the amount of solution dispensed and the lower limit value.

Liang discloses a similar dispensing system as that Raphael, with a difference of having one source of supply to Raphael's multiple sources of supply. Liang also discloses that 300 cc to 400 cc will cover approximately 150 wafers (see columns 1 and 2, especially column 1, lines 39-41 which disclose that the bottle has a volume of 500 cc, and lines 56-61, which discloses that after coating 150 wafers, the bottle has a volume of 100 to 200 cc), creating a range of 2 to 2.33 cc per wafer. Liang also discloses that it is known to use a lower limit of approximately 50 cc (50 mL).

Therefore, Liang discloses that it is known to configure the applying device such that the lower limit value is not less than the predetermined discharge amount. One in the art would appreciate that ensuring that the discharge amount is smaller than the lower limit of the middle tank would ensure that enough solution is present to perform the coating operation successfully and with minimal error. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated a discharge amount to lower limit value ratio as claimed in order to ensure proper and error free coating operation.

The apparatus of Raphael and Liang is considered capable of dispensing the claimed ratios if necessary.

As to claim 6, Raphael is silent as to the structure of the applying device.

Liang discloses that the applying device is configured so as to discharge the solution by a predetermined amount (see especially column 3, lines 46-59), due to an open-close valve (item V1) which opens and closes in increments of a predetermined time due to a timing circuit. Such a structure would dispense solution as in claim 6, and ensures that the correct amount of solution is dispensed in each cycle. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the applying device of Liang in order to ensure that the correct amount of solution is dispensed in each cycle.

Allowable Subject Matter

8. Claims 7 and 8 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, for example, Raphael (US Patent 5,383,574), does disclose the limitations of claim 7 which are described in claim 1 (for claim 7 is dependent on claim 1), which is a device for providing a solution which leads a solution from any one of sources of supply (items 14 and 18) to an applying device via a

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predetermined flow path (see, for example, Figure 1), comprising a middle tank (item 40) which is provided on the way of the flow path connecting each of the sources of supply and the applying device for each of the sources of supply, a sensor (items 98, 99, 100, and 101) which detects whether an amount of a solution stored in each middle tank is not less than a predetermined lower limit value or not and outputs a signal in association with detection result (see, for example, column 4, line 7 to column 8, line 10), and a controlling device (item 120) which discriminates whether the amount of solution stored in each middle tank is not less than the lower limit value or not on the basis of the output signal from the sensor and performs the predetermined processing in association with switching of the sources of supply when it is decided that the amount of the solution stored in the middle tank is less than the lower limit value (see, for example, column 5, line 49 to column 6, line 27). Subelements of the Sensors (items 99 and 101) specifically set the lower limit value. The prior art of record, for example, Liang, further discloses as in claim 7 (dependent on claim 1) using a pump as the applying device, and such a pump is capable of repeating a process to take in the solution by a predetermined amount and a process to discharge the solution which is taken in. However, the prior art of record does not disclose that in addition to a pump as in claim 7, the further limitations of an ante-pump tank for storing the solution to be provided to the pump which is provided between the middle tank and the pump as well as downstream of a position where flow paths from each middle tank are converged, the ante-pump tank is provided with a sensor for a pump which detects whether the amount of the solution which is stored in the ante-pump tank is not less than a predetermined

lower limit value or not and outputs a signal in association with detection result, and the controlling device discriminates whether the amount of the solution which is stored in the ante-pump tank is not less than the lower limit value or not and if the controlling device decides that the amount of the solution which is stored in the ante-pump tank is less than the lower limit value, predetermined processing in association with filling of the solution from the middle tank to the ante-pump tank is carried out.


Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (703) 305-3435 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



George R. Koch III
April 10, 2003



RICHARD CRISPINO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700